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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michael Singh

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EXAMINER

TREIDL, JESSICA I

ART UNIT

PAPER NUMBER

4145

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/559,892	Applicant(s) SINGH, MICHAEL	
	Examiner JESSICA TREIDL	Art Unit 4145	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 16, 18-20, 25, 29 and 31 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 16, 18-20, 25, 29 and 31 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060224</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because the term “polymeric surfactant” is missing an article of speech. Suggested correction is "A polymeric surfactant . . .". Appropriate correction is required.
2. Claims 25 and 29 are objected to because they are unclear. Suggested correction is “A composition according to ~~any of claims~~ claim 16 . . .” Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Leemans et al (EP 0268705).

Regarding claim 1, Leemans et al discloses a surfactant polymer (Abstract). As claim 1 is a product-by-process claim, patentability of said claim is based on the recited product and does not depend on its method of production. Neither the presence of a photoinitiator nor the action of actinic radiation further limit the formed polymeric

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surfactant. The product of claim 1 is simply a graft polymer, as such the product of Leemans et al anticipates the claimed product. In re Marosi, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Regarding claim 5, Leemans et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the polymeric surfactant wherein it has a molecular weight below 100,000 (Table 1, Preparation No. 3, Mw=21,300).

5. Claims 1-4, and 6-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Cline et al (US 3,090,664).

Regarding claim 1, Cline et al discloses a graft polymer (Title). As claim 1 is a product-by-process claim, patentability of said claim is based on the recited product and does not depend on its method of production. Neither the presence of a photoinitiator nor the action of actinic radiation further limit the formed polymeric surfactant. The product of claim 1 is simply a graft polymer, as such the product of Cline et al anticipates the claimed product. In re Marosi, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Although Cline et al discloses a graft polymer, it does not explicitly disclose the polymer as a surfactant. However Cline et al discloses the graft polymer wherein the backbone or substrate is polyamide and the monomer is acrylic acid (C2/L13-20 specifically C2/L40-41 see nylon-6, -66 & C4/L38-49). It is known in the art that polyamides, specifically nylon-6 and 66 are hydrophilic (as evidenced by US 5,830,546 C3/L42-52) and that polyacrylic acid is hydrophobic (as evidenced by US 2007/0191226

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[0256]). Accordingly, the graft polymer disclosed by Cline et al acts inherently as a surfactant.

Regarding claims 2-4, Cline et al teaches all the claim limitations as set forth above. The reference does not explicitly disclose the amphiphilic nature or solubility of the polymer surfactant. However Cline et al discloses the graft polymer wherein the backbone or substrate is polyamide and the polymerized monomer is acrylic acid (C2/L13-20 specifically C2/L40-41 see nylon-6, -66 & C4/L38-49). It is known in the art that polyamides, specifically nylon-6 and 66 are hydrophilic (as evidenced by US 5,830,546 C3/L42-52) and polyacrylic acid is hydrophobic (as evidenced by US 2007/0191226 [0256]). Accordingly, the graft polymer disclosed by Cline et al is, inherently, amphiphilic. Because the polymer contains both hydrophilic and hydrophobic portions, the surfactant is both water-soluble and oil-soluble.

Regarding claim 6, Cline et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the polymer surfactant in which the substrate is a polyamide (C2/L13-20).

Regarding claims 7 and 8, Cline et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the polymer surfactant in which the monomer is a (meth)acrylic acid (C4/L38-49 & C4/L27-28).

Claims 9 and 10 are product-by-process claims only reciting limitations directed to methods of forming said surfactant. Patentability of said claims is based on the recited product and does not depend on its method of production. Neither the presence of a photoinitiator nor the action of actinic radiation further limit the formed polymeric

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surfactant. The product of claims 9-10 is simply a graft polymer. In re Marosi, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Regarding claim 11, Cline et al teaches a method of producing a polymeric surfactant comprising:

- contacting an oligomeric or polymeric substrate with (see polymeric substrate, Title)
- at least one ethylenically unsaturated monomer and (see unsaturated acid or salt thereof, Title)
- a type II photo initiator to form a reaction mixture and (C4/L58-61. see anthraquinone (a type II photo initiator) C4/L2)

(The reference teaches dipping said substrate into a solution containing said monomer and photoinitiator (C4/L58-61).)

- wherein the reaction mixture is subject to actinic radiation to induce grafting of monomer onto the substrate and photo polymerization to form a polymeric surfactant

(The reference further teaches exposing the composition to ultraviolet light to induce grafting. C4/L58-61 & C4/L67-70 & C4/L71-73).

Regarding claims 12 and 13, Cline et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the method wherein the reaction mixture is dispersed into a liquid medium (see solvent C3/L57-63) in which the liquid medium is water (C7/L55-58).

6. Claims 16, 18 and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Binet et al (US 4,357,184).

Regarding claim 16, Binet et al discloses a composition comprising:

- a discontinuous phase distributed throughout a continuous phase (see water-in-oil composition Abstract, C1/L35-38)
- comprising an interface between phases (An interface will inherently exist because there are separate phases.)
- and in which a polymer surfactant is located at the interface (see graft co-polymer Abstract, C1/L13. Additionally it is inherent that the emulsifier of a water-in-oil composition would be located at the interface because emulsifiers work by stabilizing the interface.).

Regarding the limitation recited in claim 16 which is directed to the polymeric surfactant formed by a method comprising actinic radiation, neither the presence of a photoinitiator nor the action of actinic radiation further limit the claimed polymeric surfactant. The product of the claimed method of forming a polymeric surfactant is simply a graft polymer. As such the graft co-polymer disclosed by the reference anticipates said limitation (see graft co-polymer, Abstract). In re Marosi, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Regarding claim 18, Binet et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the composition wherein the continuous phase comprises a hydrocarbon or a water immiscible liquid (see oil/fuel C1/L36; see carbonaceous fuel C1/L50).

Regarding claim 19, Binet et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the composition wherein the discontinuous phase is aqueous (see aqueous discontinuous phase, C1/L48-49).

7. Claims 16, 20, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by Nyssen (WO 00/60015), see Nyssen (US 6,818,050) as an English language equivalent .

Regarding claim 16, Nyssen discloses a composition comprising:

- a discontinuous phase distributed throughout a continuous phase (see: solid components (a) (discontinuous phase) dispersed in water (continuous phase), Abstract)
- comprising an interface between phases (An interface will inherently exist because there are separate phases.)
- and in which a polymer surfactant is located at the interface (The reference discloses a graft polymer dispersant (C5/L12-16). The reference discloses the graft co-polymer as a dispersant and does not explicitly disclose it as a surfactant. However the graft co-polymer has both hydrophobic and hydrophilic components and will inherently act as a surfactant (C5/L17-25). Additionally it is inherent that the dispersant or surfactant would be located at the interface between the aqueous and water immiscible phases because it is amphiphilic (C5/L17-25.).

Regarding the limitation recited in claim 16 which is directed to the polymeric surfactant formed by a method comprising actinic radiation, neither the presence of a photoinitiator nor the action of actinic radiation further limit the claimed polymeric surfactant. The product of the claimed method of forming a polymeric surfactant is simply a graft polymer. As such the graft co-polymer disclosed by the reference anticipates said limitation (see graft co-polymer, Abstract). In re Marosi, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Regarding claims 20 and 25, Nyssen teaches all the claim limitations as set forth above. Additionally, the reference teaches the composition wherein the continuous phase is aqueous and the composition is an aqueous emulsion paint (C12/L27-34).

8. Claims 16, 20, 29 and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Chu et al (US 5,231,131).

Regarding claim 16, Chu et al discloses a composition comprising:

- a discontinuous phase distributed throughout a continuous phase (see pigment dispersion Abstract)
- comprising an interface between phases (An interface will inherently exist because there are separate phases.)
- and in which a polymer surfactant is located at the interface (see graft co-polymer dispersant, Abstract. The reference discloses the graft co-polymer as a dispersant and does not explicitly disclose it as a surfactant. However the graft co-polymer has both hydrophobic and hydrophilic components and will inherently

act as a surfactant (Abstract). Additionally it is inherent that the dispersant or surfactant would be located at the interface between the aqueous and water immiscible phases because it is amphiphilic (Abstract).).

Regarding the limitation recited in claim 16 which is directed to the polymeric surfactant formed by the method comprising actinic radiation, neither the presence of a photoinitiator nor the action of actinic radiation further limit the claimed polymeric surfactant. The product of the method of forming a polymeric surfactant limitation is simply a graft polymer. As such the graft co-polymer disclosed by the reference anticipates said limitation (see graft co-polymer, Abstract). In re Marosi, 710 F2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983). See MPEP 2113.

Regarding claims 20, 29 and 31, Chu et al teaches all the claim limitations as set forth above. Additionally, the reference teaches the composition in which the discontinuous phase comprises a particulate solid, the continuous phase is aqueous and the composition is a pigment dispersion (pigment dispersion, Abstract; wherein pigments are particulate solids in an aqueous phase (see aqueous carrier, Abstract)).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JESSICA TREIDL whose telephone number is (571)270-3993. The examiner can normally be reached on Monday- Thursday, 7:30AM- 5PM EST, Alt. Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on (571) 272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JT/
/2.14.08/

/Basia Ridley/
Supervisory Patent Examiner, Art Unit 4145